DOCUMENT RESUME

ED 164 569 TM 007 770

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TITLE Design and Validation of an Observation Schedule and Self-Report for the Measurement of Self-Concept in an Educational Setting.
PUB DATE [Apr 76]
NOTE 125p.; Paper presented at the Annual Meeting of the American Educational Research Association (60th, San Francisco, California, April 19-23, 1976)

EDRS PRICE MF-$0.83 HC-$6.01 Plus Postage.
DESCRIPTORS *Behavior Rating Scales; Classroom Environment; *Classroom Observation Techniques; Elementary School Students; Factor Analysis; Group Dynamics; *Group Norms; Group Tests; Intermediate Grades; Peer Influence; *Self Concept; *Self Concept Tests; Self Evaluation; Test Construction; Test Reliability; Test Validity
IDENTIFIERS *Group Self Concept Observation Schedule; *How I Am at School Self Report

ABSTRACT

The development of two new rating scales, a classroom observation schedule and a comparable student self-report questionnaire, is described. Both instruments are designed to measure group self-concept, defined as a social structure exhibiting interactions which indicate values, attitudes, and beliefs that determine the self-perception of a group, wherein individuals mirror the composite group perceptions demonstrated through group behavior. The student self-report questionnaires were combined for all members of a class in order to obtain an average score for each item to represent the class score. The classroom observation schedules were completed by five pairs of trained observers in each of seven groups--three fourth grade classes, three fifth grade classes, and one seventh grade group that included three classes working together. The instruments were designed to record descriptions of behaviors in four categories: peer interactions, teacher-pupil interactions, pupil-environment interactions, and physical self-presentation. Factor analysis of the student self-report data revealed five oblique factors. Estimates were made of scale reliabilities and of content validities. (Author/CTM)

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DESIGN AND VALIDATION OF AN OBSERVATION SCHEDULE AND SELF-REPORT FOR THE MEASUREMENT OF SELF-CONCEPT IN AN EDUCATIONAL SETTING

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CHAPTER I

INTRODUCTION

> Perhaps the single most important assumption of modern theories about the self is that the maintenance and enhancement of the perceived self is the motive behind all behavior. (Purkey, 1970, p. 10)
>
> .....
>
> No one, of course, can ever climb into another's skin, or see this construct we call self, but we can infer that self in a number of ways. Two of these ways are: 1) "self-reports," that which can be inferred from an individual's statements about himself; and 2) "observations," that which can be inferred from the individual's behavior. (Purkey, 1970, p. 78)

With the advent of ESEA Title I programs, evaluation requirements have included the self-concept of the pupil as an objective to be measured. The student self-report has most often been the vehicle through which change or growth in self-concept has been determined. A few evaluation projects have used student reported attitude and interest scales as indices of self-concept. Judgments by significant adults within the learning environment (i.e., teachers, administrators) sometimes have been included through the process of the teacher projecting how individual students will respond and determining the discrepancy between student response and adult projection.

Few studies have attempted to include systematic observation of displayed student self-concept within the operational environment.

Educating learners is a social process. Abundant evidence exists that self-concept strongly influences behaviors in learning environments as well as delimits or promotes achievement and success. Although the present trend in education is toward personalization and individualization of learning, elementary student members continue to be assembled in groups. Education remains group-oriented in relation to administrative, evaluative, and organizational factors. Teachers are responsible for and held accountable to some degree for particular groups of elementary students. Individual students exhibit and reflect attitudes, values and beliefs that formulate descriptive factors of the group as a whole. The self-concept and self-evaluation of elementary students depends to a large extent on what values, attitudes, behaviors and beliefs are acceptable to the group. The concept the child has of himself is modified by the concept he has of the group and the group has of him. The self-concept as exhibited by the group represents an area that is significant in the learning process of elementary children.

In an academic environment a positive self-concept is often the determining factor in successfully reaching potential achievement (Coopersmith, 1959). Research has

produced evidence that people who like themselves also like others (Berger, 1950) and that people who think more highly of themselves are effective to a greater extent in group situations (Mussen and Porter, 1959). It has also been judged that persons with a positive evaluation of the self are significantly less anxious than are those persons with a low self-evaluation (Coopersmith, 1959).

"The self . . . is essentially a social structure and it arises in social experience . . . it is impossible to conceive of a self arising outside of social experience" (Mead, 1934, p. 140).

In recent years pupils have been increasingly exposed to educational experiences which emphasize social and emotional growth as well as new approaches to cognitive development. Despite the added expectations, the total growth of the pupils within the proposed innovative practices are often determined by the traditional cognitive measures alone. Programs become defunct due to myths that these areas cannot be measured and by the lack of use of available instruments that measure the affective domain.

As self-concepts are developed in relation to interactions between and among group members, it is important to make an accurate observation of the total group's self-concept, as well as attempt to gain information concerning individuals. To systematically observe a group of elementary students in a learning situation allows the trained observer to record overt behavior.

Inference is a valuable tool for scientific endeavors when reliability has been established between and within observers. (Courson, 1965) Data obtained by using a systematic observation schedule are used for making judgments about how the observed group views its academic achievement and social transactions. The data further reveal the anxiety level in relation to the prescribed instructional facilitators, materials and setting.

Statement of the Problem

An instrument purporting to measure the self-concept of elementary students in a learning situation through the means of systematic observations was judged as a need in 1934 by George Mead (Mead, 1934). An examination of research on self-concept and an analysis of instruments purporting to measure self-concept revealed no observation of group self-concept instruments that deal with elementary school children.

The purpose of this study was to develop an instrument which would record the observations of group self-concept. The instrument was to contain items which allowed accurate description of overt behaviors of self-concept expressed by elementary students in grades four through six.

A secondary purpose of the study was to develop a self-report instrument that would parallel the indicators

in the observation schedule through items expressed in behavioral statements.

Significance of the Problem

> The self-concept phenomena can serve education in two ways: a) as a psychological construct which enables teachers, counselors, parents and others to achieve with training deeper understandings and insights into the behavior and development of children, and b) as a vital and important aspect of learning and development which the school through its educational processes seeks to promote and foster in every child. (Perkins, 1958, p. 220)

An observation of group self-concept schedule could be an important contribution to the field of measurement in elementary education. Data from a systematic, descriptive observation schedule are the media through which description and evaluation can take place in the area of self-concept in the elementary schools.

"The full educational implications of the self-fulfilling prophecy remain to be explored, but it seems certain that the ways the teacher views the student have a significant influence on the student and his performance" (Purkey, 1970, p. 48).

It is important that elementary teachers be accurate in their perception of exhibited self-concepts. A systematic observation procedure produces data that would possibly allow elementary teachers to gain a more thorough and exact description of the self-concept of a group within the learning environment.

Value of the Study

> Representatives of the Instructional Objectives Exchange (IOX) met with those educators (representatives of Title III programs) on that occasion (January, 1970) to indicate that after approximately eighteen months of nationwide searching, only a few affective objectives and measures had been located by the Exchange. (IOX, 1972, p. 7)

IOX attempted to design self-reports, both direct and inferential. They also designed "observational indicators" for use with role-playing or acting.

> In some cases, the measures were not tried out with learners simply because of the obvious relevance to the dimension in question. In other cases, certain measures involving contrived stimuli were tried out with learners and revised accordingly. (IOX, 1972, p. 7)

The review of the literature on self-concept by Wylie (1961) revealed that the study of self-concept had been studied largely through self-reports. Purkey's 1970 updating of the review of literature emphasized that recent studies of the self-concept are in relation to social groups and reported studies which emphasized the relationship of self-concept to society. However, published instruments which purported to describe the self-concept of elementary school children through observation required contrived situations and collected data on individual children. Wylie (1974) reported the lack of systematic observation within the learning environment.

The classroom teacher is most often viewed working with children in groups within the learning environment. A group self-concept instrument designed to describe group

behavior in daily situations could allow the teacher to view the typically expressed self-concept of the group. The displayed self-concept which the teacher must enhance or modify must be seen within the operational environment. A group observation instrument collecting data on self-concepts exhibited by learners in a group setting could be the basis for teacher behaviors that facilitate development of healthy self-concepts in members of the group. Through such systematic description, a channel of communication could be opened among evaluators, administrators and teachers who should be concerned with improving self-concept.

Assumptions

The following assumptions concerning the plausibility of inferring self-concept were developed by building rationales that extended the concepts gained through research. The review of related literature contains references that are related to the assumptions.

There is evidence gained through research that self-concepts are exhibited in consistent and stable behaviors. It is assumed, then, that self-concept within the learning environment can be observed by persons trained to look for specific descriptive indicators that support the construct of self-concept.

Research has revealed that there are "public" components of the self-concept; those from which the inner-self can be inferred through the observation of and

reporting of exhibited behaviors. It is assumed that intermediate elementary students behave in ways that are indicative of their self-concepts.

Research has further produced evidence that the individual's self-concept is influenced and modified by association with peer-groups within the learning environment. It is assumed that the total group exhibits a self-concept that is reflected and mirrored to some degree by all of the participants therein.

Inference has been a valuable tool to researchers in the social and behavioral sciences. It is assumed that observation instruments can be constructed in such a way that reliability and validity can be established.

The purpose of this study was influenced by the three previously mentioned assumptions. A formative study to construct and gather data on an "Observation of Group Self-Concept Schedule" and a parallel "How I Am At School Self-Report," would attempt to produce valid and reliable scales of measurement.

Definitions

Self-concept: An absorption of expressed feelings reflected by other members toward the individual; therefore, a composite of perceived values, attitudes and beliefs which determine the individual's interpretation and direction of his existence as exhibited by his behaviors. An attribute of the total self that is capable of change.

Group Self-Concept: A social structure exhibiting interactions which indicates values, attitudes and beliefs that determine the direction of a group, wherein individuals mirror the composite group perceptions demonstrated through group behavior. An attribute of a group that is capable of change.

Public Components of Self-Concept: That part of the inner self which can be inferred by others through observation of and reporting of the behaviors.

Inference: A conclusion or deduction from exhibited behaviors of that which is the concept of self.

Parallel Instruments: Those instruments which contain indicators of behavior on topics wherein the observer infers a component of the pupils' self and the pupil reports on a parallel component.

It is intended that the majority of terms of importance be defined throughout the report of this study, either in the review of related literature or within operational definitions.

Delimitations

The sample of this study included only fourth, fifth and sixth grade pupils from a low-socioeconomic neighborhood. The majority of the pupils were first generation Hoosiers whose parents are native Appalachian. The life-space of the child outside of the school has strong Appalachian influence.

The daily school experience of the students is strongly influenced by the Westinghouse *PLAN and therefore, is a highly individualized curriculum. The school facilities are open-spaced.

The population was selected in order to meet the evaluation requirements of a Title III (ESEA) program.

There were no accessible elementary schools with matching criteria in which to field test the instruments. For the same reason a control group was not selected.

There was a dearth of materials relative to measuring the self-concept of a group. Therefore, designing an instrument purporting to measure group self-concept depended upon the knowledge of the construct of self-concept in a learning environment, a knowledge of designing instruments and a knowledge of, as well as a familiarity with, the behaviors of intermediate elementary school children.

Summary

To summarize, there is much indication that self-concept may be the most critical factor for reaching potential success and achievement within the learning environment. The self-concept is formed in relation to group perceptions and is in fact dependent upon mirroring the values, beliefs and attitudes of significant others. Observation of self-concept has been suggested as a plausibly appropriate and reliable scientific tool,

dependent upon the reliability established between and among trained observers.

The purpose of this study was to develop an "Observation of Group Self-Concept Schedule" that would eventually allow educators to evaluate the self-concept of intermediate elementary students. This study is significant in that an observation of group self-concept schedule has not been previously devised and further, it is valuable in that it can provide the basis for the development of teaching behaviors that would enhance the self-concept of elementary pupils.

It was assumed by the researcher that the self-concept of a group could be observed and recorded in a systematic, descriptive manner. It was also assumed that a group exhibited a self-concept that was evidenced by the interactions of the social structure. Further, it was assumed that inference can be a legitimate and valuable tool of research.

Pertinent definitions and delimitations of the study were presented.

Organization of the Report

Research defining and supporting the parameters of the concept the group has of itself and references concerning the essential components of instrument construction are reviewed in Chapter II. Chapter III

includes procedures and instrumentation used within the study. The analysis and interpretation of the data are reported in Chapter IV, and are followed by the summary, conclusions and recommendations in Chapter V.

CHAPTER II

REVIEW OF RELATED LITERATURE

The following references to related literature include definitions and discussions judged to be supportive of an attempt to develop and validate an instrument purporting to measure group self-concept through systematic observation and parallel student self-reports.

The process of educating learners is a social process. Although the present trend in education is toward personalization and individualization of learning, elementary student members continue to be assembled in groups. Education remains group oriented in relation to administrative, evaluative and organization factors. Teachers are responsible for and held accountable to some degree for particular groups of elementary students (House, 1974). Individual students exhibit and reflect attitudes, values and beliefs that formulate descriptive factors of the group as a whole (Kinch, 1963). The self-concept and self-evaluation of elementary students depends to a large extent on what values, attitudes, behaviors and beliefs are acceptable to the group (Coopersmith, 1967). The concept one child has of himself is modified by the concept

he has of the group and the group has of him (Sullivan, 1953). The self-concept as exhibited by the group represents an area that is significant in the learning process of elementary children.

The studies of William James in 1890 and Sigmund Freud in the early 1900's brought the concept of self to the attention of educators and psychologists. As Ruth Wylie (1974) points out, the Self did not receive much attention from the Behaviorists during the 1920's through the latter part of the 1940's. However, there were phenomenological theorists who contributed to the studies of self during that period. Adler (1924), Fromm (1939) and Horney (1937) concluded that the "conscious self" determined how a person would behave.

George Mead reported that the self-concept of individuals was influenced by interactions with others. He referred to the self as the component which influenced behavior in that "we can summon ourselves as organizations of responses into the field of experience" (Mead, 1943, p. 371). Mead focused on the self as a determiner of transactional outcomes among societal members.

Raimy, in 1943, said:

> The self-concept is the more or less organized object resulting from present and past self-observation . . . (it is) what a person believes about himself. The self-concept is the map which each person consults in order to understand himself, especially during moments of crisis or choice. (pp. 140-141)

In 1945, Prescott Lecky presented the idea that individuals will continue to behave in ways that are consistent with the concept that they have of themselves. Festinger, in 1957, reinforced this concept and furthered added that individuals who internally accumulate conflicting feelings will be compelled to act in such a way that the dissonance is resolved.

John Kinch (1963) reported, "The individual's conception of himself emerges from social interaction and, in turn, guides or influences the behavior of that individual" (Kinch, 1963, p. 68).

Definitions

Most researchers who have focused on self-concept have attempted to formulate their definition of self-concept. Coopersmith reports that "the self is an abstraction that an individual develops about the attributes, capacities, objects and activities which he possesses and pursues. This abstraction is represented by the symbol 'me', which is a person's idea of himself to himself." (1959, p. 87) Mead maintains that the self "is a social structure arising from social experiences" (1934, p. 140). Rogers concludes that:

> The self-concept or self-structure may be thought of as an organized configuration of perceptions of the self which are admissable to awareness. It is composed of such elements as the perceptions of one's characteristics and abilities; the percepts and concepts of the self in relation to others and to the environment; the value qualities

> which are perceived as associated with experiences and objects; goals and ideas which are perceived as having positive or negative balance. (p. 136)

Combs states that an individual's Self "is what he believes he is" (1962, p. 52). Combs and Snygg judged that,

> The self is the individual's basic frame of reference, the central core around which the remainder of the perceptual field is organized. In this sense, the phenomomenal self is both product of the individual's experience and producer of whatever new experience he is capable of. (1959, p. 146)

Carl Rogers (1951), a clinical psychologist, contributed evidence that the self does evolve out of social interactions and continues to strive to maintain the recognized self. He proposed that the drive to maintain a consistent self was even stronger than some biological drives.

Jersild stated:

> The self is a composite of thoughts and feelings which constitute a person's awareness of his individual existence, his conception of who and what he is. The self constitutes a person's inner world as distinguished from the "outer world" consisting of all other people and things. (1952, p. 9)

Jersild was a prominent figure in attempting to relate child psychology and education. He proposes that although it is not deliberate, a child acquires attitudes toward himself and ideas about himself that gradually become The Self. The suggestion that the development is left to chance unless education systematically interferes, is the basis for his studies.

Maslow (1954) outlined a hierarchy for the establishment of Self. He concludes that once physiological and safety needs are met, Self becomes of prominent importance to the individual.

In the late 50's and early 60's researchers focused on how the individual evaluates the Self. Erickson (1963) emphasized that a sense of belonging was a necessary component in a health self-concept. Diggory (1966) concluded that possessing competencies were essential to the Self evaluation and Jersild (1963) stated that feeling worthy improved the individual's evaluation of Self. Coopersmith (1967) judged that variables of independence, leadership and popularity influenced self-esteem.

The Self Concept as Defined in the Learning Environment

Beginning in 1967-68, the research regarding the Self appeared to center around school achievement and psychological development. Although previous research had produced evidence that a positive self evaluation and concept of self were necessary for success, it appears that it was in the late sixties that the outcomes of cognitive tasks were viewed as dependent variables. Purkey (1970) contributed useful information regarding the role that self-concept plays in relationship to success in school. He stated,

> The best evidence now available suggests that it is a two-way street, that there is a continuous

> interaction between the self and academic achievement, and that each directly influences the other. (Purkey, 1970, p. 23)

He further made suggestions of teacher behaviors and teaching climates that can promote a positive self-concept in elementary school children. Berger (1951) reported that when attitudes toward the Self and attitudes toward others were correlated, those elementary students with the positive self-concepts were found to be the most positive about their peers.

Instrument Design and Analysis Related to Affective Areas

Observation Schedule

> The potential of systematic-observation instruments for usefulness in educational research and training is enormous. In addition to using observation data as measures of classroom process and as outcome measures in planned change, we may use observation data to provide feedback in teacher training or to describe the classroom process existing within a school or training facility. Observation instruments can readily be used for comparison of behaviors across grade levels or programs. One can only hope that the proliferation of instrumentation for research involving systematic observation will be followed by systematic use of the most valid and reliable instruments to measure and evaluate the teaching process across all levels and kinds of education and training. (Encyclopedia of Educational Evaluation, p. 269)

According to Kerlinger observation can be considered in two components: (1) recording of direct observations and (2) asking individuals to report on other's behavior. Kerlinger further assigns characteristics of importance that are involved in observations of behavior. The first

includes "categories" which he states "must be exhaustive and mutually exclusive" (1973, p. 541) with reference to selecting the indicators of behavior that will define the measured variable. Secondly, he suggests that the units of behavior will fall along a continuum of degrees between the "molar approach" and the "molecular approach" wherein the former identifies whole behavioral components to observe and the latter describes small segments of isolated behaviors. Kerlinger's third components refers to the degree to which there is observer inference, which could range from a highly descriptive system to a system which required immediate judgments to be made in reference to the behaviors observed. A fourth category in the observation system is considered in terms of its degrees of applicability or generality to universal situations; some observational instruments are designed for a particular setting and others can be used or modified for secondary environments or purposes. The fifth and last component Kerlinger refers to is that of the sampling of behavior. He stated, "There is event sampling and time sampling" (p. 545). The former refers to behavioral units being reported and the latter calls for recording segments of interactions.

Nunnally (1967) reports that when an observer is asked to report on someone other than himself the validity of the observational measure is dependent upon the observer.

He reports,

> In most observational methods, the interest is in the affective traits of the person being observed, and the intention is for the observer to be an impartial, accurate judge of the traits of the other person. (p. 486)

He further reports that in contrast to a subjective, highly judgmental approach to observation there can exist an objective observation system in which the observer records what the subject does. Although it is the construction of the observation instrument that contains an organization which restricts the use of high-inference or judgmental criteria, there is a necessity for training observers to use the systems in an efficient and effective manner; the rationale being that semantics and ideolects interfere with accurate or consistant definitions of adjectives and descriptors used in systematic observational systems. Pairs of observers must also be trained to interpret scales and continua with proportional consistency.

McElhinney (1973) reports that in the construction of observation instruments descriptors should maintain the lowest level of inference possible through the use of descriptive terms in order that the observer can record the actual behavior observed without including inferences prejudiced by previous experiences and without biasing the reporting with a set of criteria. He further judges that the inferences made and the criteria used in judging the data collected are a component for decision making in

the evaluation process. The latter statement implies that recording data and applying criteria to it should be two different stages of the evaluative process.

There are approximately five general types of rating scales that can be used in connection with the observation method: (1) checklist, (2) forced-choice items, (3) category rating scale, (4) numerical rating scale, and (5) graphic rating scale. Nunnally (1967) reports that rating scales appear to be easy to construct and consequently that deceptive trait interferes with the validity of many rating scales. He makes the judgment that if construction of rating scales is carried out with skill and knowledge then the instruments can be tools for research.

Affective measures lend themselves more adequate to the following types: One, the category rating scale is well represented by the popular Thurstone (1929) and Likert (1932) scales of measurement which express approximately three to five statements ranging in various degrees from favorable to unfavorable, or from agreement to disagreement. Second, the numerical rating scale represented by Guilford is

> perhaps the easiest to construct and use. They also yield numbers that can be directly used in statistical analysis. In addition, because the numbers may represent equal intervals in the mind of the observer, they may approach interval measurement. (Guilford, 1954, p. 264)

The graphic rating scale, a third affective measurement medium, suggests a continuum with equal intervals wherein

adjectives describe the point of reference. It appears to be a combination of the first two scales mentioned.

Kerlinger (1973) states that in spite of the possible intrinsic and extrinsic weakness of constructing observational systems for use, that:

> Rating scales can and should be used in behavioral research. Their unwarranted, expedient, and unsophisticated use has been rightly condemned. But this does not mean general condemnation. They have virtues that make them valuable tools of scientific research; they require less time than other methods; they are generally interesting and easy for observers to use; they have a wide range of application; they can be used for a large number of characteristics. It might be added that they can be used as adjuncts to other methods. (Kerlinger, 1973, p. 459)

Self-Report Instruments

> In a discussion of inventories, it is important to make a distinction between self-inventories and other types of inventories. By a self-inventory is meant one in which the individual describes his own traits . . . There are numerous types of items that can be employed in self-inventories. Most typically, the subject is presented with a list of statements and asked to mark yes - no, true - false, or agree - disagree. (Nunnally, 1967, pp. 475-476)

The major concerns about self-reports in the area of affective measures are related to validity and reliability of the instruments. The general related literature states that the self-reports are reliable if the findings through data collection are consistent with repeated administrations and that they are valid if they are indeed measuring what they claim to measure. A third concern is that students lack the knowledge and maturity

to make assessments that can be heavily relied upon, and therefore, it is necessary to use the self-report in conjunction with other data gathering media.

Rogers (1951) suggests that the pupil's interpretation of himself is trustworthy information and Allport (1961) states that the individual should be respected enough to be believed concerning his self-report.

Wiley states:

> We would like to assume that a subject's self-report responses are determined by his phenomenal field. However, we know that it would be naive to take this for granted, since it is obvious that such responses may also be influenced by the: a) subject's intent to select what he wishes to reveal to the examiner, b) subject's intent to say that he has attitudes or perceptions which he doesn't have, c) subject's response habits particularly those involving introspection and the use of language, and d) host of situational and methodological factors which may not only induce variations of a), b) and c) but may exert other more superficial influences on the response obtained. (1961, p. 24)

McElhinney (1974) judges that students have difficulty in responding to the content of instruments when the students are involved in an unfamiliar and difficult skill of the response process to a new rating scale soliciting a self-report. Therefore, the technique selected for student response should be given careful consideration.

The Florida Educational Research and Developmental Council supports the inherent weakness listed by Wiley. Gordon, in 1968 suggests that self-report scales might best be used for group comparisons rather than for criterion

referenced indicators for individual children. Trends would then have a tendency to reflect realistic concepts within the learning environment and group interaction would tend to cancel out individuals' lack of self-reporting adequacies.

Need for Parallel Measures

Michael and Plass (1973) reported that there was a confusion in the literature as to the exact parameters of self-report with reference to self-concept. They report a lack of congruence in the literature between self-report and self-concept measures. Coopersmith (1967) indicated that there was a need for a combination of observer evaluations and self-reports when collecting information on the self-concept. This seems to arise from the organizational feature of the self wherein there are private and public components of the self. It is possible that there are overlapping components which can be demonstrated by correlating the observation and self-report measures to determine the proportion in common. Campbell and Fiske (1959) demonstrated that multitrait-multimethod validation would most likely produce different construct factors for student self-reports and observers.

> The statistical analyses of the data strongly indicated that the self-concept is a complex entity made up of many constructs, the validity of which is dependent upon the measurement procedure. (Michael and Plass, 1973, p. 439)

In relation to the need for parallel instruments to gather information for the self concept, Raimy provides three principles of the Self-Concept Theory which support the multi-method process of research:

1. The Self-Concept is a learned perceptual system which functions as an object in the perceptual field.
2. The Self-Concept not only influences behavior but is itself altered and restructured by behavior and unsatisfied needs.
3. It may have little or no relation to external reality. (Raimy, 1971, p. 99)

The literature referring to the organization of the self provides support for the need to gather information on the self through both self-reports and observations. Purkey proposes that,

> Some concepts are very close to the essence of self and so are located closer to the center. Other concepts are less central and are located toward the outside of self. Each concept in the system has its own value. . . . (1968, p. 8)

> One final dynamic quality of the self is that it determines behaviors. As the self changes, behavior changes. Individuals are constantly trying to behave in ways which are consistent with the ways they view themselves. . . . The world of the self may appear to the outsider to be subjective and hypothetical, but to the experiencing individual, it has the feeling of absolute reality. (Purkey, 1968, p. 9)

A schematic drawing of the self as is represented in Figure 1 diagramatically illustrates the various levels of the self as referred to in the related literature.

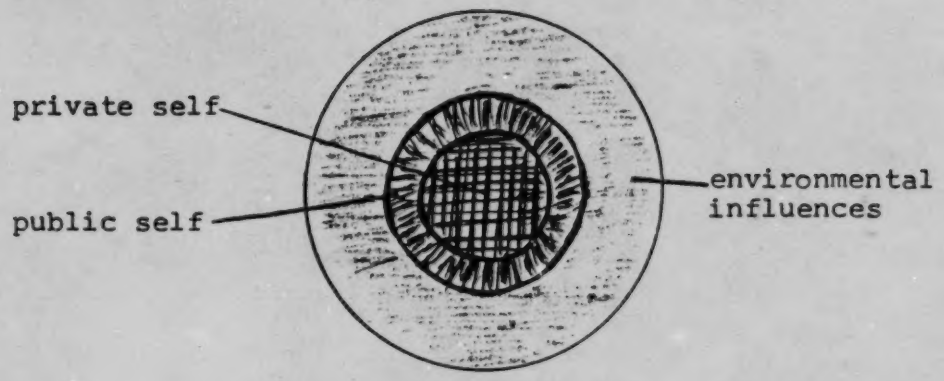

Figure 1: A Schematic Drawing of the Self

Analysis Procedures of Instruments Purporting to Measure Self-Concept

Wylie makes an evaluative statement of recent research in the area of self concept:

> One notable improvement is that there is more widespread verbal recognition of the need for (a) using instruments with acceptable levels of reliability and construct validity; (b) doing more construct-validation work; and (c) qualifying one's conclusions in the light of limitations on the measuring instruments used. (1974, p. 324)

The following references to literature are related to the problems of obtaining reliability and validity estimates of instruments during the primary stages of development. The analysis of data of both observation schedules and self-reports purporting to measure self-concept in regard to reliability and validity will be discussed.

> The evaluator (researcher) must be concerned about the quality of the techniques and instruments used in interviews, observations, ratings and tests; and "quality" is usually defined in terms of validity and reliability. Validity is the more important of these two concepts, but

> reliability is a necessary, if not sufficient condition, for validity. (Encyclopedia of Educational Research, 1974, p. 325)

Reliability

The standards for educational and psychological tests as promulgated by APA state: "Reliability refers to the degree to which the results of testing are attributable to systematic sources of variance" (p. 48).

Kerlinger approaches the definition of reliability by asking three questions: (1) "If we measure the same set of objects again and again with the same or comparable measuring instrument, will we get the same or similar results?" (2) "Are the measures obtained from a measuring instrument the 'true' measures of the property measured?" (3) ". . . how much error of measurement (is) there in a measuring instrument?" Therefore, "Reliability is the accu4acy or precision of a measuring instrument" (1973, p. 443). "Synonyms for reliability are: dependability, stability, consistency, predictability, accuracy" (1973, p. 442).

Nunnally stated:

> Random errors of measurement are never completely eliminated; but to portray nature in its ultimate lawfulness, efforts are made to reduce such errors as much as possible. To the extent to which measurement error is slight, a measure is said to be reliable. Reliability concerns the extent to which measurements are repeatable--by the same individual using different measures of the same attribute or by different persons using the same measure of an attribute. (1967, p. 172)

The estimates of reliability most concerned with in the observation schedule was that of interrater agreement. As has been previously stated the quality of the data gathered through the instrument is dependent upon the raters. According to Standards for Educational and Psychological Tests: "Reports of reliability studies should ordinarily be expressed in . . . terms of variances of error components, standard errors of measurement or product-moment reliability coefficients" (p. 52).

The estimate of reliability on self-reports is most often gained through the test-retest procedure. Wiley reports, "A test-retest coefficient involving the same test, or approximately timed testing with comparable forms, may be necessary to clarify interpretations of results in certain studies" (Wiley, 1974, p. 118). Wiley disputes the idea that researchers should rely on the split-half procedure to obtain a reliability coefficient due to a lack of item-equivalency error being demonstratable. According to Young and Veldman further sources for attaining measures of reliability are through the use of the t-test for between group assessment and the analysis of variance technique for the assessment of two or more groups (Young and Veldman, 1972).

The aforementioned literature was considered in determining the research design. The techniques are demonstrated in Chapter IV on Analyses of Data.

Validity

"Most measurement textbooks have a definition of test validity that goes like this: A test is valid if it measures what it purports to measure" (Encyclopedia of Educational Evaluation, 1975, p. 458).

The Standards (1974) state:

> It is important to note that validity is itself inferred, not measured. Validity coefficients may be presented in a manual, but validity for a particular aspect of the test use is inferred from this collection of coefficients. It is, therefore, something that is judged as adequate, or marginal, or unsatisfactory. (p. 25)

The primary stage of developing new instruments required two validation techniques: Content and Construct.

Cronbach reports that:

> Adequacy of content is attained by defining the universe appropriately and representing the universe fairly in the test. The definition ought to cover the (1) the kinds of tasks, stimuli, or situtations over which the universe ranges; (2) the kinds of response the observer or scorer ought to count and (3) the injunction to the subject. (1970, p. 145)

Kerlinger (1973) suggests that a panel of judges familiar with and competent in the measured topic should pool independent judgments about each item in the developed instrument. After each item has been given consideration, content validation can be reported by the chairman of the panel in a written statement concerning the percentage of agreement among panel members concerning each item.

Content validity itself is considered nonstatistical (Downie, 1970). Although content validity is a necessary

component of the total validity its contribution is to define the domain within which the rater or responder will perform (Standards, 1974).

Validity established on instruments purporting to measure a construct must further establish construct validity.

> A psychological construct is an idea developed or 'constructed' as a work of informed, scientific imagination; that is, a theoretical idea developed to explain and to organize some aspects of existing knowledge. (Standards, 1974, p. 29)

It is further reported that,

> Construct validation is an analysis of the meaning of test scores in terms of psychological concepts or 'constructs'. . . . The process of construct validation is the same as that by which scientific theories are developed. (Cronbach, 1970, p. 142)

Cronbach (1970) suggests that the process of construct validation should include internal correlations. The process of factor analysis allows items to be correlated with each other and result in an original factor matrix. After varimax rotation to orthogonal or oblique simple structure clusters of items are produced which can be probed for underlying structures.

According to Rummel (1970) the orthogonal simple rotation will ensure statistically independent factors which lend themselves to further analysis, i.e., using a multiple regression technique with the factors serving as independent variables. He reports that the oblique simple rotation would allow for correlation among factors

to be exposed. Cattel (1952) suggests that within oblique rotation, clusters are better defined and the additional information of both pattern and structure matrices lend themselves to further heuristic efforts.

Wiley reports:

> The total yield of information in proportion to the energy and time expended on factor analysis of self-concept measures seems limited. It is clear (that in past studies) factor analysis has been used more to test extant self-concept tests than as a tool in the construction of new ones. . . . To avoid such disappointments and make more constructive use of the factor-analytic technique, it is desirable to use the technique from the beginning of the test construction process. (1974, p. 102)

Kerlinger (1973) reports that factor analysis is concerned with two purposes: (1) to examine clusters in an attempt to identify underlying structures and (2) to test hypotheses about the variables. The common factor variance expressed through factor analysis provides the researcher with information that describes the various dimensions that possibly make up the construct. In relation to the second purpose, primary stages of instrument construction involve projecting content or face factors that serve as hypotheses to be tested (in terms of whether the organization of items indeed belong together as projected).

Rummel suggests that the interpretation of factor analysis include criteria, approaches, considerations and visual interpretation. It is the researcher's prerogative

to decide whether the criteria will be for purposes of communication or further inquiry. He states that the approaches to the criteria and considerations can be descriptive, causal or symbolic. The considerations for interpretation include: loadings, variance, meaningfulness, rotation, bipolarity, direction of relationship, structure and missing data. He further indicates that the visual interpretations that are helpful could include tables, graphs, plots and Venn diagrams (Rummel, 1970, p. 473).

Summary

The related literature revealed that education for elementary students remains a process wherein pupils operate within group oriented learning environments. From the interactions with significant others in the operational setting, individual elementary pupils formulate a picture of himself in relation to the feedback he receives from the group as a whole concerning values, beliefs and attitudes. The self-concept of the individual is in a formative stage during the elementary school years and as it is learned through group interaction within the learning environment, it is assumed that teacher behaviors and learning climates can be established to influence positive self-concepts of groups of students and of individuals within those groups.

Although the related literature does not use the term "Group Self-Concept" in relation to elementary students, the literature supports the concept by the assumptions made about the organization of the structure of the Self and by the promotion of teaching behaviors and learning climates that influence groups of students in positive ways. The literature on the assessment of self-reports on self-concept made by the elementary students is presently promoting the analysis of the data in terms of group assessment. "Group Self-Concept" is plausibly and rationally a concept of the present and of the future.

It was determined through the review of related literature that data gathered through the use of systematic observations could be considered 'hard data.' Observation instruments, in fact, could be valuable research tools.

The major concerns involved in the construction of instruments purporting to measure self-concept are those of determining and assessing reliability and validity coefficients. The literature suggested that the test-retest procedure was an adequate process for determining reliability on self-report measures and further, that rater-agreement as determined through the process of correlation was necessary for observation instruments.

In reviewing the literature for assessing validity there was a range of judgments concerning the essential or necessary approaches to obtain the information on

affective measurements. Panel judgment was supported in obtaining content validity and factorial analysis was supported for the primary stages of determining construct validity.

The need for parallel measures was revealed in the review of literature. The rationale stated by several sources was that self-concept is a complex structure; it is necessary to gain information concerning the organization of the structure through more than one assessment medium. Observing behaviors indicative of the self that is reported on by groups and individuals was judged to be a necessity.

CHAPTER III

PROCEDURES AND INSTRUMENTATION

Instrument Development

The "Observation of Group Self-Concept Schedule" was designed to record the exhibited group behaviors indicative of the self-concept expressed by elementary students in grades four through six.

For purposes of this research the "How I Am At School Self-Report" was developed to contain items that would be helpful in (1) determining the accuracy of assessing the students' inferred self-concept and (2) communicating the observed and reported self-concepts to school personnel. Therefore, all variables contained in both instruments are considered to be "public" components of the self-concept; public, meaning those from which the inner-self can be inferred through systematic observation of and collective reporting of exhibited behaviors purported to be indicative of group self-concept.

Description

Several criteria were used when considering the content for construction of the observation schedule and the self-report: (1) Items on the observation schedule

were to contain descriptive rather than judgmental adjectives as much as possible. (2) The reading comprehension and conceptual levels of the students were considered when constructing the self-report items. (3) The ability of the students to respond to self-evaluation items in regard to appropriate response terms was considered.

The construction of the "Observation of Group Self-Concept Schedule" initially involved identifying behaviors exhibited by students in an open-spaced learning environment. Extensive systematic observations of students as they were involved in daily learning activities suggested that pupil behaviors could be classified under peer-interactions, pupil-environment interactions, teacher-pupil interactions and behaviors characteristic of physical self-presentation. For purposes of organized observation, indicators (exhibited behaviors) were grouped within the aforementioned categories.

Relevant literature was probed to determine the amount of agreement between these observed indicators presumed to be associated with the construct of self-concept and indicators that other researchers had identified.

The rationale for developing indicators prior to close examination of specific items in other measurements of self-concept is as follows: An assessment instrument

is an operational definition of the content it purports to measure. Instruments designed to describe "public" components of group self-concept were not available. Instruments which were accessible contained mixtures of public and private indicators and were designed to be used with individuals rather than groups of elementary students. The latter were not reviewed in order that an attempt at perceiving and formulating an operational definition of group self-concept could occur without the interference of a mind set of assessment of self-concept as it relates to the individual.

After the initial construction of both the observation schedule and the self-report, an examination of existing self-report measurements were observed to contain indicators grouped under similar projected factors.

The data collection format for the observation schedule judged to be the most appropriate and interpretable was through the placement of each indicator on a five-point continuum with positive and negative descriptors at either end. Each item was individually constructed through observing elementary students and by assigning adjectives of exhibited behaviors which were perceived to be representative of a positive or negative self-concept within a learning environment. Behaviors which were positive or negative descriptors of self-concept

did not function as well when they were merely antonyms as when they were descriptive of realistic behaviors.

The self-report instrument was designed by writing a first person statement in behavioral terms relating to each item of the observation schedule. The terms "always," "sometimes" and "never" were selected for student responses. The range of response terms considered contained at least one negative term. As a result, the items were stated in a positive manner. Based on the experience of the researcher, students in grades four through six have difficulty with interpreting double negatives (which a negative statement and a negative response combined produce.)

The item refinement process included several stages of constructive criticism by evaluators, counseling psychologists and educators, as well as repeated use of the observation form wherein deletions or additions would occur. Both instruments then contained thirty-one indicators grouped under four projected face factors. The face factors were organized by selecting indicators that contained content similarities which could be placed under a descriptive label.

Scoring was accomplished by assigning points of one through five in ascending order on the five-point continuum of the group observation schedule. The self-report was assigned five points to the "always" response,

three points to the "sometimes" response and one point to the "never" response.

Training of Observers and Administrators

Doctoral students in an upper-division program-evaluation class were presented with the developed observation schedule and self-report with an oral description of the formation and proposed purpose of the instruments. A thorough explanation of each indicator on the observation schedule was presented with the simultaneous use of a film which focused on an entire classroom of students (Eye of the Storm, ABC Media Concepts, 1970.)

Five doctoral students and one faculty member were asked to collect data using the "Observation of Group Self-Concept Schedule." Those observers received in-field training through using the observation schedule with several classrooms. The observers were asked to work in pairs and systematically observe each classroom simultaneously for twenty minutes. At the end of each training session, pairs of raters were asked to compare and discuss their judgments. A group session followed each of the two training periods for further descriptions and clarifications. At the end of two in-field training sessions it was judged that the raters understood the format, the purpose and indicators well enough to begin collecting data.

The administrators of the self-report consisted of two doctoral students and a university faculty member who were considered to be non-significant individuals to the students in grades four, five and six. Each of the instrument administrators had previous experience with elementary students. Instrument administrators were directed to give students an explanation of why they were being asked to mark the instruments and to further explain that there were no right or wrong answers. Directions consisted of how to mark an example statement and to mark each question only after hearing the administrator read it orally.

Sample

The sample of this study included intermediate elementary students in a low-socioeconomic neighborhood school in a city of 80,000 in Indiana. The majority of the students were first generation Hoosiers whose parents were native Appalachian.

The daily school experiences of the students were strongly influenced by the Westinghouse *PLAN, and attempted personalization as well as individualization. Each grade level was taught by three teachers and two aides, supplemented by special teachers. The school facilities were open-spaced and that pupils were assigned to individual teachers within grade levels became less noticeable as the school year progressed.

Data Collection

Observation Schedule

Five pairs of trained observers rated each of three pupil groups in each grade level. Independent pairs of observers rated a group simultaneously for twenty minutes. Data were collected through the use of the thirty-one item observation schedule on seven groups of pupils. Three groups each of fourth and fifth graders were observed. Although sixth grade students responded to self-reports in terms of a group being identified with one teacher, observations made on the sixth grade were combined due to interaction among all three groups within an open area at the time of the study.

The organization of data collection and tabulation was a major component of the instrument development process. Appendix F indicates the form found to be the most helpful for organizing and summarizing data gathered by observers.

Self-Report Instrument

The thirty-one item self-report instrument was administered to nine groups of students in the fourth, fifth and sixth grades with the number of pupils in each group ranging from twenty-one to twenty-nine. Individual students recorded their responses on the self-report forms after each item was read orally by an administrator of the instrument

Pupil group responses were initially summarized by frequencies and percentages. Individual pupil groups, total grade levels and total intermediate pupil groups were organized item by item. The mean item score was obtained for each of the aforementioned groups. Appendix G indicates the form found to be the most helpful for organizing and summarizing the pupil response data.

Reliability

The following procedures for estimating the reliability of the instruments were reported in order that the process of analyzing the data could illustrate the necessary steps for replication. The components of reliability that were relevant to the construction of the observation schedule and the self-report instrument were interrater reliability, mean scores and standard deviations on face factors for individual study groups, as well as the standard error of the mean between groups within each projected face factor. Other components of reliability assessed were the value of *F* in relation to an analysis of variance of group change and the stability coefficient for a test-retest procedure.

Interrater Agreement

Interrater agreement was established by correlating raw scores of each pair of raters on each study group observed.

Test-Retest Procedures

A subset of the sample was selected at random for test-retest procedures in order to measure the reliability of the self-report instrument. Random selection of the pupils occurred by arbitrarily selecting one of the grade levels to be retested after a three week interim occurred since the testing of the total sample.

Forty-six students were selected at random by drawing their code numbers from the fifth grade pool of numbers. The rationale for the retest occurring after the primary collection of the data is based on the reality of using an operational school environment for the source of the study. Students were available for research on two and only two occasions. Not all students could be available for a test-retest process. No other schools were available to the researcher wherein students were exposed to the Westinghouse*PLAN, open education and team teaching, as well as maintaining the same percentage of ethnic groups. The researcher was foremost interested in the data collected on the primary occasion and did not want precuing to occur. Therefore, the test-retest procedure took place as presented.

The pupils in the 1973-74 fourth and fifth grade classes maintained the same teaching teams and area of the building, as well as retained eighty per cent of the student group membership during the following 1974-75

school year. This allowed an attempt to measure change in student self-reports over a ten month period wherein environmental variables were held constant as much as possible in education's operational environment.

In February of 1975 the total sample of the intermediate grades were given a revised form of the "How I Am At School Self-Report." The revision included editorial changes only. The scores of the first twenty-three students on each of the fourth and fifth grade 1974-75 roles who were present for the 1974 and 1975 test administrations were statistically treated through the analysis of variance technique to primarily determine change in student self-reports and secondarily to determine stability in the self-report instrument.

Validity Measures

Content Validity

A panel of three Education Psychology Faculty were asked to make judgments concerning the content validity of both the observation schedule and the self-report. The definition of content validity and the process of content validation according to Kerlinger (1973) were used.

Construct Validity

The data from the self-report instrument for the total sample was factor analyzed to uncover underlying dimensions. The factor matrix was rotated to oblique

and orthogonal simple structures for interpretive purposes. The oblique simple structure was used in order that determined underlying factors could be correlated with one another. A second purpose for using the oblique simple structure was to obtain clusters of variables that were distinctly defined wherein indicators with the highest factor loadings could be recognized as central members of the clusters. The orthogonal simple structure was used in order that statistically independent factors could be obtained for future research purposes that would include a multiple regression technique. Factor analysis is recognized as a statistical procedure for obtaining construct validity. Appendix H contains the means and standard deviations obtained for each indicator in the self-report prior to factor analysis.

Criterion-Referenced Validity

Criterion-referenced or predictive validity was not relevant for this stage of development of the instruments as the purpose was to develop the instruments and not to attempt to forecast other behaviors, such as "reading readiness." Instruments require estimates of reliability and validity before they are meaningfully correlated with other measures. The aforementioned multiple regression technique using the data gathered through the orthogonal rotation will provide the opportunity for estimates of criterion-referenced validity to be obtained.

Statistical Design

The statistical design included the general data collection process on the observation schedule and the self-report. It further included analyses attempting to obtain estimates of reliability and validity.

The statistical design was written in tabular form to insure clarity. Tables 1 through 9 contain information concerning data type, subjects, instruments, dates of administration and the disposition of the data.

TABLE 1

GENERAL DATA COLLECTION PROCESS
ON THE OBSERVATION SCHEDULE

Data Type:	Individual observers recorded data in terms of a check mark within an appropriate point on the continuum. Each check was redefined as a tally mark and as a score for further analysis.
Subjects:	All sections of all fourth and fifth grade levels in one building were observed in individual sections identified with one teacher. The total sixth grade was observed as one group identified with three teachers.
Instrument:	"Observation of Group Self-Concept Schedule for Fourth, Fifth and Sixth Grade Pupils" - Eckard, 1974.
Dates Administered:	November 5, 6, 7, 1974.
Disposition of Data:	Raw scores of individual raters and pairs of raters as well as range of scores for each five pairs of raters observing individual groups.

TABLE 2

GENERAL DATA COLLECTION PROCESS
ON THE SELF-REPORT

Data Type:	Individual students marked one of three responses by indicating their choice with a check mark. Each check was redefined as a tally mark and as a score for further analysis. All individual scores were combined into respective group scores for all analyses.
Subjects:	All individuals in all sections of fourth, fifth and sixth grades were administered the self-report.
Instrument:	"How I Am At School Self-Report" - Eckard, 1974.
Dates Administered:	November 6, 1974.
Disposition of Data:	Group mean scores, standard deviations and standard error of the mean for groups.

TABLE 3

RELIABILITY MEASURES GAINED THROUGH OBTAINING MEAN FACE FACTOR SCORES AND STANDARD ERRORS OF THE MEAN FOR GROUPS WITHIN EACH FACTOR ON THE OBSERVATION SCHEDULE

Data Type:	Composite of raw scores on each face factor obtained by ten raters observing individual study groups.
Subjects:	All fourth, fifth and sixth grade study groups.
Instrument:	"Observation of Group Self-Concept Schedule for Fourth, Fifth and Sixth Grade Pupils" - Eckard, 1974.
Dates Administered:	November 4, 5, 6, 1974.
Disposition of Data:	Mean scores for each face factor for individual study groups in grades four and five and for the total sixth grade group. Standard errors of the mean for groups within each factor.

TABLE 4

RELIABILITY MEASURES GAINED THROUGH TEST-RETEST PROCEDURES OBTAINING A MEAN, STANDARD DEVIATION AND RELIABILITY COEFFICIENT FOR A FIFTH GRADE SUBSET SELECTED AT RANDOM

Data Type:	Individual raw scores and composite group scores.
Subjects:	Forty-six fifth grade students selected at random.
Instrument:	"How I Am At School Self-Report" - Eckard, 1974.
Dates Administered:	November 6, 1974, 1st administration. November 27, 1974, 2nd administration.
Disposition of Data:	Composite raw scores of the first and second administrations were correlated to define the reliability of the self-report instruments. The Pearson raw score formula was used to obtain the coefficient of correlation.

TABLE 5

CONTENT VALIDITY AS DETERMINED BY PANEL AGREEMENT ON THE OBSERVATION SCHEDULE

Data Type:	Indicators of public components of self-concept placed on a five-point continuum with positive and negative descriptors at either end.
Subjects:	All sections of fourth and fifth grades as well as the total sixth grade population.
Instrument:	"Observation of Group Self-Concept Schedule" - Eckard, 1974.
Dates Reviewed:	February, 1975.
Disposition of Data:	A panel of three Education Psychology faculty were asked to make a formal judgment concerning the content validity of the observation schedule. The definition of "content validity" and the process of "content validation" according to Kerlinger were used. Content validity was also gained by reviewing the related literature and finding supportive statements or instrument indicators.

TABLE 6

CONTENT VALIDITY AS DETERMINED BY PANEL AGREEMENT ON THE SELF-REPORT

Data Type:	First person statements indicative of public components of self-concept regarding the student's position on his individual judgment about his own physical self-presentation, interaction with the environment, peer interaction and interaction with teachers.
Subjects:	All fourth and fifth and sixth grade pupils as well as subsets of the total population.
Instrument:	"How I Am At School Self-Report" - Eckard, 1974.
Dates Reviewed:	February, 1975.
Disposition of Data:	A panel of three Educational Psychology faculty were asked to make a formal judgment concerning the content validity of the self-report. The definition of "content" validity" and the process of "content validation" according to Kerlinger were used.

TABLE 7

CONSTRUCT VALIDITY AS DETERMINED THROUGH FACTOR ANALYSIS ON THE SELF-REPORT

Data Type:	Individual raw scores.
Subjects:	Two-hundred and twenty-nine intermediate pupils.
Instrument:	"How I Am At School Self-Report" - Eckard, 1974.
Dates Analyzed:	January, 1975.
Disposition of Data:	A factor analysis was employed by rotating the original factor matrix to oblique simple structure. Maximum iteration for communalities equal to 1. The correlation coefficient was held to .95. Oblique rotation for simple loadings was performed with gamma equal to 0.0.

TABLE 8

RELIABILITY MEASURES GAINED THROUGH OBTAINING MEAN FACE FACTOR SCORES AND STANDARD ERRORS OF THE MEAN FOR GROUPS WITHIN EACH FACTOR ON THE SELF-REPORT INSTRUMENT

Data Type:	Composite of raw scores for individual study groups on each face factor.
Subjects:	All fourth, fifth and sixth grade study groups.
Instrument:	"How I Am At School Self-Report" - Eckard, 1974.
Dates Administered:	November 6, 1974.
Disposition of Data:	Mean score for each face factor for individual study groups in grades four, five, and six. Standard errors of the mean for groups within each factor.

TABLE 9

RELIABILITY MEASURES THROUGH ASSESSMENT OF CHANGE THROUGH ANALYSIS OF VARIANCE

Data Type:	Individual raw scores and composite group scores.
Subjects:	Forty-seven sixth graders selected at random from students who were available for both the 1974 and 1975 measurements.
Instrument:	"How I Am At School Self-Report" - Eckard, 1974, First administration. Revised form, second administration.
Dates Administered:	November 6, 1974, 1st administration. February 13, 1975, 2nd administration.
Disposition of Data:	Between group variance, within group variance, sums of squared error, mean squared error and obtained F for analysis of variance procedure.

Summary

In summary, the development of the instruments took place as follows:

The instruments were designed to assess group behaviors that were indicative of self-concept exhibited by intermediate elementary students.

The construction of the observation instrument was based on criteria that promoted descriptive rather than judgmental items. The formation of the self-report instrument considered criteria of student comprehension and conceptual levels, as well as ability to respond to instruments.

The process of developing both the observation schedule and the self-report included close examination of students in an open-spaced learning environment and the review of relevant literature pertaining to self-concept, to instrument design and to analytical procedures for reliability and validity estimates. The process further entailed in-field use of the instruments for in-depth clarification and refinement. Evaluators, counseling psychologists and educators offered constructive criticism of the instrument in the primary stages.

Observers and administrators of the instruments were trained until the researcher and the participants were comfortable with the instruments and the process of data collection.

The sample included the total fourth, fifth and sixth grade students that experienced the Westinghouse *PLAN, open education and team teaching.

The data collection process included five pairs of trained observers rating each of the pupil groups in each grade level, wherein pairs of observers rated a group simultaneously for twenty minutes. Seven groups of intermediate grade students were observed. The thirty-one item self-report was administered to two hundred and twenty-nine pupils organized in respective sections of fourth, fifth and sixth grade levels.

Procedures to determine reliability of both instruments included: obtaining interrater agreement through correlation of raw scores for each pair of raters on each study group observed. A subset of the population was selected at random for test-retest using the self-report in order to obtain a reliability of stability coefficient. The scores of students in the fifth and sixth grades who were available for the 1974 and 1975 administrations of the self-report instrument were statistically treated to determine change and to determine stability of the self-report instrument over a ten month period.

Validity measures included a panel of judges verifying that the items on both instruments were representative of indicators of self-concept within a learning environment. The self-report data were factor analyzed

to determine underlying dimensions. It was determined that an insufficient amount of data on the observation schedule prevented factor analysis of the observation schedule at this stage of data collection.

A statistical design was presented in the form of tables which included information concerning the data type, subjects, instruments, dates of administration or review and the disposition of data in reference to general data collection, data collection for the purposes of gaining reliability estimates and for the procedures of obtaining validity measures.

Chapter IV also includes the analysis of the procedures and data reported in this chapter.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

The purpose of this study was to construct and gather data on an "Observation of Group Self-Concept Schedule" and a parallel self-report entitled "How I Am At School Self-Report." This was an attempt at producing valid and reliable scales of measurement in the area of self-concept of intermediate elementary pupils. Therefore, the research design included procedural organization that specified collection and treatment of data in such a manner that the data would produce measures of reliability and validity.

Reliability measures included obtaining interrater reliability for the observation schedule and a stability coefficient of reliability through a test-retest procedure on the self-report. The analysis of variance technique was applied in order to determine stability in student's self-reports over a ten month period.

Validity measures were centered around content and construct validity as those indices were judged to be the components of validity appropriate for the preliminary stage of instrument construction.

Both reliability and validity are inferred from the coefficients obtained. There was a consistant lack of agreement within the related literature as to defined adequate or inadequate results for measurements in the area of self-concept.

Criterion-related validity was not considered, as an assumption of criterion-referenced validation is that the instruments involved already must contain reported reliability and validity estimates.

Reliability Measures

Observation Schedule

An analysis of the general collection of data revealed mean face factor scores and standard deviations for each of the groups observed. The face factors on both instruments were identified by projecting that indicators with content similarities could be grouped under a descriptive label.

The variance of the observation schedule as indicated by the standard deviation of each of the individual group's factor scores was minimal. The obtained standard error of the mean revealed little variation between individual groups of students on factor scores.

Table 10 summarizes the analysis of data collected through the use of the thirty-one item observation schedule on the following groups. The possible minimum and maximum scores are reported with the projected face factors.

TABLE 10

TOTAL SUMS AND STANDARD DEVIATIONS OF PROJECTED FACE FACTORS AND MAXIMUM AND MINIMUM SCORES REPORTED FOR EACH FACTOR ON THE OBSERVATION SCHEDULE

	Physical Self-Presentation (9-45)			Environmental Interaction (7-35)		
Group	Sum	M	SD	Sum	M	SD
4-1	335	33.50	34.89	272	27.20	28.29
4-2	297	29.70	30.98	274	27.40	28.61
4-3	358	35.80	37.29	277	27.70	28.71
5-1	275	27.50	28.74	202	20.20	21.39
5-2	308	30.80	32.13	265	26.50	27.64
5-3	324	32.40	33.73	272	27.20	28.37
6	304	30.40	31.80	273	27.30	28.58
	Peer Interaction (8-40)			Pupil-Teacher Interaction (7-35)		
Group	Sum	M	SD	Sum	M	SD
4-1	310	31.00	32.19	256	25.60	26.68
4-2	239	23.90	24.73	234	23.40	24.66
4-3	308	30.80	32.04	254	25.40	26.39
5-1	230	23.00	24.11	230	23.00	24.09
5-2	297	29.70	30.84	283	28.30	29.37
5-3	321	32.10	33.39	260	26.00	26.93
6	290	29.00	30.44	268	26.80	28.24

Interrater reliability was a major concern in constructing an observation schedule. Five pairs of raters observed each study group and recorded their observations over a twenty minute period. The raw scores for each of the pairs of observers in each observational circumstance were correlated using the Pearson product-moment formula. A coefficient of correlation was determined for each pair of raters.

Table 11 indicates the correlation coefficients for pairs of raters gathering data on individual study groups through systematic observation.

TABLE 11

CORRELATION COEFFICIENTS FOR PAIRS OF RATERS GATHERING DATA ON INDIVIDUAL STUDY GROUPS THROUGH SYSTEMATIC OBSERVATION

Group	Pair A	Pair B	Pair C	Pair D	Pair E
4-1	.62	.46	.58	.26	.81
4-2	.89	.51	.66	.53	.48
4-3	.58	.75	.50	.53	.59
5-1	.90	.10	.88	.89	.83
5-2	.53	.80	.29	.58	.30
5-3	.88	.37	.78	.32	.85
6-1/3	.19	.62	.54	.71	.19

*Observations were made on the combined sixth grade group due to interaction of the groups within an open spaced area.

Twenty-five per cent of the pairs of raters obtained a correlation coefficient of .80 or greater. Seventy-four per cent of the pairs of raters obtained a correlation coefficient of .50 or greater. The correlation coefficients were based on absolute agreement.

Self-Report Instrument

The mean and standard deviation were computed for each section within each grade level in relation to the self-reports administered to groups of pupils. Table 12 presents a summary of the mean score and standard deviation of the self-reports administered to all groups of pupils and the related standard error of the mean.

TABLE 12

MEAN SCORE AND STANDARD DEVIATION OF THE SELF-REPORTS ADMINISTERED TO ALL GROUPS OF PUPILS AND THE RELATED STANDARD ERROR OF THE MEAN

Group	N	M	SD	SE_m=4.14
4-1	27	108.63	12.63	
4-2	23	110.20	9.26	
4-3	22	120.36	16.79	
5-1	21	109.67	11.43	
5-2	29	115.62	13.24	
5-3	24	117.47	10.78	
6-1	24	120.00	11.41	
6-2	23	112.82	10.32	
6-3	22	114.91	12.05	
Total	225	114.10		

Although sixth grade students responded to self-reports in terms of a group being identified with one teacher, observations were made on the sixth grade and were combined due to the interaction among all three within an open learning area.

Observers' mean factor scores were within one point agreement with mean factor scores of related self-reports sixty-five per cent of the time. Observers' mean factor scores were three to four points higher than related self-report mean factor scores twelve per cent of the time, and lower by three to ten points twenty-two per cent of the time.

The mean scores and standard deviations of the projected face factors were obtained for each group of self-reports, as was the standard error of the mean computed for between-group error.

Table 13 presents the summary of the analysis of the self-report data for all groups of pupils. The maximum and minimum scores for each factor are reported as are the mean scores and standard deviations for face factors and the related standard error of the mean.

TABLE 13

MEAN SCORES AND STANDARD DEVIATIONS FOR FACE FACTORS AND RELATED STANDARD ERROR OF THE MEAN WITH THE MAXIMUM AND MINIMUM SCORES REPORTED FOR EACH FACTOR ON THE SELF-REPORT

Physical Self-Presentation (9-45)				Environmental Interaction (7-35)		
Group	M	SD	SE_m=2.78	M	SD	SE_m=2.60
4-1	32.19	3.85		25.67	3.84	
4-2	33.24	3.76		25.16	3.11	
4-3	34.27	3.41		27.73	5.54	
5-1	32.24	3.38		26.71	3.86	
5-2	33.07	3.53		27.97	3.01	
5-3	34.12	3.24		28.82	3.28	
6-1	34.17	3.68		28.75	2.72	
6-2	32.13	3.18		26.22	3.50	
6-3	34.22	4.54		28.57	3.57	

Peer Interaction (8-40)				Student-Teacher Interaction (7-35)		
Group	M	SD	SE_m=1.96	M	SD	SE_m=1.78
4-1	27.41	3.99		23.37	4.57	
4-2	27.60	2.45		24.20	3.87	
4-3	31.18	5.40		27.18	6.52	
5-1	25.81	3.40		24.91	4.88	
5-2	27.86	4.66		26.72	5.20	
5-3	29.82	4.19		24.71	5.17	
6-1	30.42	3.88		26.67	4.71	
6-2	28.87	2.61		25.61	3.84	
6-3	28.61	3.69		23.52	4.83	

A test-retest reliability coefficient was calculated for a fifth grade subset selected at random from the original fifth grade sample. Using a three week interim, the reliability coefficient was significant at the .05 level.

Table 14 describes the summary of the analysis assessing the reliability of the sample.

TABLE 14

TEST-RETEST RELIABILITY COEFFICIENT FOR A FIFTH GRADE SUBSET USING A THREE WEEK INTERIM

N	Time	M	SD	r
23	1	119.35	12.98	.84 $p < .05$
23	2	116.65	11.42	

The pupils in the 1973-74 fourth and fifth grade classes maintained the same teaching teams and area of the building as well as retained eighty per cent of the student group during the 1974-75 school year. An attempt to measure stability in the student self-report over a ten-month period took place by selecting a pool of 45 fifth and sixth grade (1974-75) students whose self-reports were available for the first and second measure. Considering the influencing variable of a twenty per cent difference in makeup of the group, the researcher judged that a one-way analysis of variance for non-correlated groups

would be used. This was based on the rationale that group self-concept varies with the "total" group and although the "total" group was not being measured, it was assumed that the "total" group influence of both 1974 and 1975 was a viable influence on the self-concept of those students being measured.

An analysis of variance indicated that: significant change as determined through statistical analysis was not in evidence. If the obtained F is viewed as a test-retest reliability coefficient, there is indication that the self-report is stable over a ten-month period at the .05 level.

Table 15 includes the summary of analysis of variance related to measuring change in student self-reports over a ten-month period.

TABLE 15

SUMMARY OF ANALYSIS OF VARIANCE RELATED TO MEASURING CHANGE IN STUDENT SELF-REPORTS OVER A TEN-MONTH PERIOD

Source	SS	DF	MS	F
bg	310.7	1	310.7	.72 $p < .05$
wg	39,938.3	92	434.1	
Total	40,249.0	93		

Validity Measures

Content Validity

The panel of Educational Psychology Faculty reported that the observation schedule and the self-report contained a pool of items which related to individual indicators of public self-concept. This procedure was carried out to investigate the content validity of both instruments. Appendix A contains verification of the judgment in a letter written by the chairman of the panel.

Construct Validity

The literature reported that one technique used to contribute to the knowledge of construct validity was the factor analysis process. Although the operational setting has not allowed for the additional twenty observations necessary for the minimum amount of data for a meaningful factor analysis, a sufficient amount of data was collected on the self-report instrument in order to procede with the process.

The analysis of the data attempting to interpret the construct validity was a theoretical process, as well as an analytical one. As factor analysis is not a one-step process, the following pages will contain analyses and interpretations of the original simple oblique rotation describing five factors, as well as the final simple orthogonal rotation describing two factors

with item delitions. The orthogonal rotation was used wherein statistically independent factors would be obtained for further research purposes, while the oblique rotation was used in order that resulting underlying factors could be correlated and high factor loadings would indicate central cluster members.

Table 16 presents the factor matrix for the simple oblique rotation on five underlying factors of the self-report.

TABLE 16

FACTOR MATRIX FOR SIMPLE OBLIQUE ROTATION ON FIVE UNDERLYING STRUCTURE FACTORS OF THE SELF-REPORT

Item	I	II	III	IV	V
1					.29
2			.53		
3				.42	
4		.31			
5	.12				
6	.34				
7					.27
8					.30
9	.36				
10				.22	
11			.41		
12	.44				
13		.43			
14		.36			
15				.40	
16				.40	
17				.37	
18				.51	
19					.41
20				.30	
21				.32	
22		.39			
23			.14		
24				.30	
25		.52			
26	.35				
27	.56	.32			
28		.26			
29	.54	.33			
30		.53			
31		.45			

	I	II	III	IV	V
Eigenvalues:	3.89	1.14	.88	.75	.73
Cumulative Proportion of Total Variance:	.13	.16	.19	.21	.24

Thirty-three per cent of the items on the first two projected face factors clustered in two respective groups when the matrix was rotated to oblique structure. Fifty-seven per cent of the items in the third projected factor clustered as did seventy-five per cent of the items in the projected fourth face factor.

The underlying factor structure indicated that items throughout the instrument possibly clustered around the topics of: (I) communication, (II) feelings toward the operational environment, (III) energy level, (IV) task orientation, and (V) evaluation of self as seen by others.

Factor analysis is a highly subjective process with reference to determining the number of interpretable factors. Five factors were chosen for the oblique rotation as a noticeable decrease occurred between the eigenvalue of .72 for factor five and the eigenvalue of .58 for factor six. As eigenvalues are the sums of the squared factor loadings, the cumulative proportion of the total variance for all five factors was considered to be small. However, the upper limit on the correlation coefficient was established at .95 with the constant held to 1.00. As the initial communality estimates were squared multiple correlations, the stringent parameters of the program (BMD08M-Factor Analysis-Revised March 27, 1973-Health Sciences Computing Facility-UCLA) held the variables at a minimum performance level.

The oblique rotation allowed for examining the correlation or interaction between clusters of variables. According to Rummel (1970), if correlations of .10 or greater exist between factors an oblique rotation is justifiable and can be used for further heuristic purposes. Table 17 contains the factor correlation matrix for the oblique rotation.

TABLE 17

FACTOR CORRELATION MATRIX FOR THE OBLIQUE ROTATION ON THE SELF-REPORT

	I	II	III	IV	V
I	1.00	-.22	+.16	-.34	-.08
II		1.00	-.01	-.18	+.15
III			1.00	-.12	-.07
IV				1.00	+.08
V					1.00

The matrix indicated that underlying Factor I revealed a negative relationship with Factors II and IV as well as a positive relationship with Factor III. Factor II indicated a negative relationship with Factor IV and a positive relationship with Factor V. Factor III revealed a slight negative relationship with Factor IV.

If the above relationships are referred back to the possible labels placed on each factor, it can be assumed that environmental and developmental variables have some influence on the clustering or non-clustering of items.

It was noted that items numbered one, five, seven, ten, twenty-three and twenty-eight did not have loadings above .30. Therefore, those items which contained communalities less than the .05 level permitted were excluded. The remaining items were subjected to simple orthogonal rotation wherein two factors were considered for interpretation as judged by the sudden decrease in the eigenvalue (.62) of the third underlying factor.

It was determined that possible labels for the underlying factors on the simple orthogonal rotation were, (I) teacher expectation and (II) relaxation within learning environment.

The orthogonal rotation procedure was selected at this point for future mathematical manipulation, as each factor would be statistically independent and could serve as an independent variable in multiple regression analysis. This process would aid criterion-reference validity in secondary stages of the instrument construction.

Table 18 presents the factor loadings for simple oblique rotation with item delitions. The upper limit on the correlation coefficient was established at .95 and the constant was held at 0.0.

TABLE 18

FACTOR MATRIX FOR SIMPLE ORTHOGONAL ROTATION ON TWO UNDERLYING FACTORS OF THE SELF-REPORT WITH ITEM DELITIONS

Item	I	II
2		.28
3	.53	
4		.29
6	.38	
8	.30	
9	.32	
11	.26	
12	.52	
13		.43
14	.25	
15	.47	
16	.27	
17	.48	
18	.38	
19		.41
20	.27	
21		.31
22		.44
24		.17
25		.48
26	.28	
27		.47
29		.49
30		.53
31		.48
Eigenvalues:	I 3.74	II 1.04
Cumulative Proportion of Total Variance:	.15	.19

Thorough examination of both factor matrices on individual and comparative bases indicated that there were items which were weak and not supportive of the total instrument. The degree to which they were weak varied with varimax rotations although the clusterings of the items in general did not. The factors were found to be interpretable even though the amount of variance explained was nominal to the extent that no powerful statements could be made.

As a major thrust of this research in the design and construction of instruments purporting to measure self-concept was to maintain a balance between theoretical and statistical analyses, the items considered to be statistically weak were scrutinized for syntactical weaknesses. A secondary stage of instrument construction will use both the systematically logical and statistical analysis for revision purposes.

Correlation of Instruments

The relationship between the "Observation of Group Self-Concept Schedule" and the "How I Am At School Self-Report" was determined by the raw score formula for obtaining the Pearson *r*. The value $r = +.55$ expressed the strength of the relationship between the two instruments; consequently, there would be approximately thirty per cent variance in common between the instruments.

Summary

The purpose of this study was to attempt to construct instruments which would indicate their reliability and validity through the analysis of the data collected.

The reliability measures involved interrater reliability wherein raters were in agreement at the fifty per cent or higher level three-fourths of the time. It further included a test-retest procedure with an interim of three weeks and an analysis of variance technique with an interim of ten months. The reliability coefficient on the test-retest was .84 ($<.05$) and the stability coefficient was .72 ($<.05$).

Validity measures which were pertinent to the construction of the observation schedule and the self-report included content validity which a panel of judges concluded items maintained were representative of indicators of public self-concept.

Construct validity on the observation schedule could not be determined statistically due to a need for twenty-nine per cent more individual rater observation scores. The factor analysis technique was possible for the self-reports wherein the analysis of the oblique simple rotation revealed five underlying factors which were interpretable for purposes of instrument reorganization and future heuristic endeavors. The analysis of the orthogonal simple rotation indicated two underlying

factors which were interpretable as variables in a future multiple regression analysis.

The correlation coefficient of .55 between the self-report and the observation schedule supported the assumptions of the need for parallel instruments to gather data on the complex structure of the self-concept.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to construct and gather data on an "Observation of Group Self-Concept Schedule" and a parallel "How I Am At School Self-Report," in an attempt to produce valid and reliable scales of measurement of group self-concept. The significance of the study was founded in the lack of instruments assessing group self-concept; it was considered a valuable study to attempt to produce instruments which could provide the basis for prescribing teaching behaviors and developing atmospheres that would enhance the group self-concept of pupils in grades four, five and six.

An assumption was made that the public components of self-concept are revealed through persistent and stable behaviors. Therefore, specific descriptive indicators could be systematically organized to form an observation schedule and a self-report so that data could be collected on the public self of groups of intermediate elementary pupils.

A further assumption was that a total group exhibits a self-concept that is produced by the interaction of its' members and that the individual member's behavior is both modified by and exhibits the concept the group has of itself.

A final assumption was that observation schedules could be constructed in a way that reliability and validity could be established; therefore, inference would be a valuable tool to researchers in the social and behavioral sciences.

Group self-concept was defined as: A social structure exhibiting interactions which indicate values, attitudes and beliefs that determine the self-perception of a group, wherein individuals mirror the composite group perceptions demonstrated through group behavior. It is an attribute that is capable of change.

The related literature did not contain the term group self-concept, nor did it offer a synonym for it. There was, however, much support for the concept in references to the organization and structure of the self, as well as in recommendations for analyzing the data in terms of group assessments. The conclusions of several studies indicated a need for parallel instruments to gather data on the complex structure of the self.

The construction of both the observation and self-report instruments were based on criteria that

promoted descriptive rather than judgmental items. The process of instrument development included close examination of students in an operational setting and review of literature relevant to self-concept, instrument design in the affective domain and analytical procedures for reliability and validity estimates. The instruments were exposed to field testing and constructive criticism for in-depth clarification and refinement.

Observers and instrument administrators were trained until the researcher was comfortable with their skills in the data collection procedure.

The sample included fourth, fifth and sixth grade pupils who were involved in the Westinghouse *PLAN which included computer assisted instruction, open-education and team-teaching.

The data collection process included five pairs of trained observers rating each pupil group in each grade level, wherein pairs of observers rated a group simultaneously for twenty minutes. Seven groups of students were observed and the self-report was administered to two hundred and twenty-nine pupils in grades four, five and six.

Interrater agreement was obtained on the observation schedule through the correlation of raw scores for each pair of raters on each study group. Twenty-five per cent of the pairs of raters obtained a correlation

coefficient of .80 or greater. Seventy-four per cent of the pairs of raters obtained a correlation coefficient of .50 or greater.

A test-retest reliability coefficient of .84 ($<.05$) on the self-report was obtained for 23 fifth graders retested after a three week interim. An analysis of variance technique revealed that there was not a significant change in 47 sixth grade pupil's self-reports and that a stability coefficient of .72 ($<.05$) was obtained.

A panel of Educational Psychology Faculty assessed the content validity of both instruments and agreed that both contained a pool of items which related to individual indicators of public self-concept.

The analysis of the data attempting to interpret the construct validity was a theoretical process, as well as a statistically analytical one. The self-report was administered to the total sample of students and the data was factor analyzed. An oblique simple rotation produced five factors which could be interpreted for purposes of instrument reorganization. An orthogonal simple rotation with item deletion produced statistically independent variables to be used in a future multiple regression analysis.

A coefficient of .55 was obtained between the observation schedule and the self-report when the total fourth, fifth and sixth grade data were correlated.

Conclusions

1. Constructing observation and self-report instruments and gathering data with them in order to produce reliable and valid measures was an interesting and intellectually stimulating process throughout the entire study. The major problem that occurred initially and continued to be an obstacle was the maintenance of a productive balance between the systematically logical and the statistical procedures and analyses. Fusing the varying judgments and methods into compatable tools to use in the study, eventually provided the basis for intrinsic satisfaction with the final processes and products.

2. A second problem incurred was the lack of materials which provided informative techniques for constructing observation instruments in the affective domain. Therefore, a research design could not be formulated in the early stages of development. As a result an excessive amount of time was spent in contemplation of treating data in a variety of methods in order to determine the most beneficial procedures which would lend themselves to more competent analyses.

3. Examination of the raw data on all of the "Observation of Group Self-Concept Schedules" revealed that raters appeared to not make use of the extreme ends of both continuums. It was reported by the raters that they were uncomfortable with indicating that a group

exhibited extreme positive or extreme negative characteristics. It was concluded that the revised observation schedule would contain a seven-point continuum. As variation was interpreted as negligible, it is assumed that an expanded continuum would perhaps allow a more thorough study of the variation that would exist within factors in contrast to the variation between factors. Consequently, within group and between group variance could more plausibly be scrutinized for environmental variables effecting dispersions.

Although observation schedule indicators constructed with one end of a continuum containing two concepts did not appear to interfere with the data collection process initially, it was judged that the indicators should be revised to contain only one concept within each descriptor. This decision was based on the raters having to spend extra time with those more complex items.

4. The individual self-report data also revealed little variation. As with the observation schedule, it was judged that the response limitations interferred with obtaining a dispersion of scores that revealed useful between-group and within-group variation. Therefore, the organization of the response system on the self-report will be changed to a linear continuum ranging from "always" to "never". Predetermined verticle marks will allow for interpreting a seven-point continuum. Many

students attempted to use a continuum type approach within the response method by placing an "x" to the far right or left of each response box.

5. The statistical analyses provided the opportunity to study the relationship between observer data and self-report data. The majority of projected mean factor scores of both instruments were within close proximity to each other. The dispersion of scores assigned to the peer interaction factor and to the pupil-teacher interaction factor appeared to maintain a broader range on the self-reports of most groups. Possible conclusions are that students and teachers act in a consistent manner the majority of the time; therefore, pupils report their varying degrees of contentment with the interactions and the raters report the observed, assumedly consistent, interaction. It could be concluded that when comparing observation and self-report data that means rather than variance should be focused upon.

6. The analysis of variance technique was used based on the assumption that theoretically the groups being measured were non-correlated. As it could be argued that the groups should be considered for correlational statistical analysis only, it could be proposed that a t-test for correlated groups would be performed in order to obtain a reliability coefficient. As the analysis of variance technique is more stringent, it could

be concluded that the obtained coefficient in Table 15 would be even greater.

7. The factor analysis of the self-report data using the oblique simple structure revealed items that were not supporting the instrument or factors therein. A second factor analysis performed on the self-report instrument using an orthogonal rotation revealed that there were weak items, but the degrees to which they were weak varied with the rotation. A major conclusion reached was that while statistical analysis revealed strengths and weaknesses of the concepts within an instrument, in the formative stage of development it was advantageous to attempt to improve weak concepts through revision of syntactical or organizational structure rather than eliminate them.

8. The correlation of the self-report instrument and the observation schedule revealed that thirty per cent of their total variance was held in common. It could be concluded that the assumed complexity of the self requires a variety of media through which data can be collected on the reported and inferred public components. If a systematic observation schedule would allow significant adults within the learning environment to be thirty per cent more accurately aware of how the group perceives itself, teacher behaviors and learning environments could be further modified to enhance the group self-concept.

9. The "Observation of Group Self-Concept Schedule" and the "How I Am At School Self-Report" were considered to be in a formative level of development. The analysis of data gathered through the instrument indicated strengths and weaknesses which were reviewed in order to refine the instruments for use. The refined instruments are located in Appendix D and Appendix E.

Recommendations

1. It is recommended if this study is replicated, that a research design be formulated in the primary stages of development wherein data collection techniques, data coding, data preparation and analyses be determined. If computer programs are going to be used, it is recommended that program selection take place in the primary stages in order that familiarity with the mechanical aspects of keypunching, job submissions and interpretation of printouts be possible.

2. A second recommendation is that a balance be maintained between theoretically logical and statistical approaches in constructing the instruments and analyzing the data. Statistical procedures are designed to be helpful in decision making and are not designed to provide dynamic parameters to serve as obstacles to research in the behavioral sciences. Neither can it be assumed that relying on frequencies and percentages will provide the quality needed to make intelligent decisions. Had this

study initially relied on statistical power analysis and the pure statistician's assumptions, then it would not have been begun. However, had the analytical techniques not been used in later stages of the study, future heuristic endeavors would be near impossible.

3. A procedure that is recommended for in-depth review of this data is that data tables be examined to compare self-report scores and observation scores with reference to grade level and projected face factors. Further insight can be gained from comparing rater correlation coefficients with the face factor mean scores and standard deviations within and between groups. It is recommended that the same procedures take place with data collected with these instruments on other samples in order to determine similarities and differences.

4. In recent years pupils are increasingly exposed to educational experiences which emphasize social and emotional growth as well as new approaches to cognitive development. Despite the added expectations, the total growth of the pupils within the proposed innovative practices are often determined by the traditional cognitive measures alone. Programs that socially and emotionally stimulate teachers and children become defunct due to myths that those areas cannot be measured and by the lack of use of available instruments that measure the affective domain in such a way that results can be

profitably used. Therefore, it is recommended that the revised instruments be used to gather data on the concept groups have of themselves. Consequently, teacher behaviors and classroom climates can be established that will promote the chances that elementary students will develop and maintain a positive self-concept.

5. Finally, it is recommended that researchers direct decision making school personnel to these and other products of measurement in the affective areas and assist them with implications of the outcomes. Without the intermediary step of communication, research is of little use to teachers who will be ultimately held accountable for the growth of their students and of little use to students who will continue to be assigned successes or failures, good or bad, based on their achievement test scores.

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APPENDICES

APPENDIX A

JUDGMENT CONCERNING CONTENT VALIDITY OF THE OBSERVATION OF GROUP SELF-CONCEPT SCHEDULE AND THE HOW I AM AT SCHOOL SELF-REPORT

BALL STATE UNIVERSITY MUNCIE, INDIANA 47306

TEACHERS COLLEGE
Department of Educational Psychology

April 24, 1975

Ms. Pamela Eckard
Doctoral Candidate
Department of Elementary Education
Ball State University
Muncie, Indiana 47306

Dear Pam,

You have asked me to make a judgment on the content validity of the instruments you have developed and are using for your doctoral research - - - the Group Self-Concept Observation Schedule for Elementary Pupils and the How I Am at School Self-Report. I am pleased to do so.

First, with regard to both instruments the item statements seem logically related to the aspect of self-concept they are measuring. These statements represent some of the items that could be used to assess the various facets of self-concept of elementary school pupils. Second, with regard to the intended parallelism between the two scales, the self-report items on the How I Am at School Scale seem to be logically related to and could measure some aspect of the factors of self-concept with which the Group Self-Concept Observation Schedule deals.

Sincerely,

Carson M. Bennett

Carson M. Bennett
Professor of Educational
Psychology

CMB/cas

APPENDIX B

SELF-CONCEPT OBSERVATION SCHEDULE FOR ELEMENTARY PUPILS (1974)

SELF-CONCEPT OBSERVATION SCHEDULE
FOR ELEMENTARY PUPILS
Eckard 1974
c

Physical Self-Presentation

1.1 Posture
Contributes to activity or self-presentation ( ) ( ) ( ) ( ) ( ) interferes with activity or self-presentation, distractive

1.2 Energy
alert, active ( ) ( ) ( ) ( ) ( ) sluggish, inactive, lethargic

1.3 Concentration
attentive, observant ( ) ( ) ( ) ( ) ( ) indifferent, inattentive

1.4 Body Movement
skillful, purposeful ( ) ( ) ( ) ( ) ( ) reckless, destructive nervous, jumpy, unsteady

1.5 Voice Volume
appropriate to situation, pleasant ( ) ( ) ( ) ( ) ( ) too loud, boisterous muted, too soft

1.6 Speech
clearly articulated, enunciates ( ) ( ) ( ) ( ) ( ) muffled, unclear

1.7 Appearance
clean, orderly ( ) ( ) ( ) ( ) ( ) soiled, careless, dirty

1.8 Humor
responds to, contributes ( ) ( ) ( ) ( ) ( ) contributes excessively

1.9 Facial Expression
highly expressive ( ) ( ) ( ) ( ) ( ) no expression

Response to Physical Environment

2.1
uses for intended purpose, careful

Books and Materials
( ) ( ) ( ) ( ) ( ) mars, defaces destructive

2.2
uses independently

Competence with Materials
( ) ( ) ( ) ( ) ( ) needs assistance, depends on others

2.3
restores after use, maintains

Concern for Defined Area
( ) ( ) ( ) ( ) ( ) does not restore or maintain

2.4
at ease, comfortable

Attitude
( ) ( ) ( ) ( ) ( ) discontent, uneasy

2.5
touches, handles

Tactility
( ) ( ) ( ) ( ) ( ) refrains from touching, avoids

2.6
accepts, completes

Response to Task
( ) ( ) ( ) ( ) ( ) avoids
( ) ( ) ( ) goes through motions, feigns completion

2.7
industrious, deligent

Attitude Toward Task
( ) ( ) ( ) ( ) ( ) oblivious, inactive

Interaction with Peers

3.1
relates to pleasantly, openly — Response to Peers — ignores, avoids excessive interaction

3.2
assumes individual responsibility — Parallel — dominates, controls; withdraws, submits

3.3
resourceful, creative — Individual Work — repetitive, imitative

3.4
humor, warmth, agreement optimistic — Contribution to Climate — destructive, condemns, pessimistic

3.5
co-operative, compatible — Rapport — hostile, antagonistic

3.6
seeks contact, social — Positioning — isolates, withdraws

3.7
independent, self-reliant — Attitude with Peers — dependent, relies on peers

3.8
appropriate to situation — Physical Contact — initiates disruptive, or abusive contact; avoids appropriate contact

Interaction with Teachers

4.1
responds willingly, open, trustful

Rapport
( ) ( ) ( ) ( ) ( ) rejects openly, avoids

4.2
initiates with purpose, or contributes openly

Discussion or Conversation
( ) ( ) ( ) ( ) ( ) avoids, remains silent
( ) ( ) ( ) initiates unnecessary conversation

4.3
relaxed, warm, friendly

Pupil/Teacher Climate
( ) ( ) ( ) ( ) ( ) Tense, unsure rigid

4.4
enthusiastic, stimulated

Teacher Directed Activities
( ) ( ) ( ) ( ) ( ) critical, discontent

4.5
seeks contact with

Positioning
( ) ( ) ( ) ( ) ( ) avoids, withdraws

4.6
respectful, courteous

Consideration
( ) ( ) ( ) ( ) ( ) disrespectful, rude discourteous
( ) ( ) ( ) fawning, excessive falttering

4.7
discerns and responds to humor

Perception of Humor
( ) ( ) ( ) ( ) ( ) fails to discern humor
( ) ( ) ( ) perceives humor where none exists

APPENDIX C

HOW I AM AT SCHOOL SELF-REPORT (1974)

How I Am At School
Self-Report
For Elementary Pupils In
Grades Four, Five & Six
Eckard 1974 c

	Always	Some-times	Never
1. The way I stand and sit helps me in school.			
2. I have enough energy to work and play in school.			
3. I pay attention to the things I am working on.			
4. When I move around I do not disturb others.			
5. My voice is not too loud or too soft at school.			
6. I speak so my classmates understand me.			
7. My clothes and hair look nice to my classmates.			
8. I laugh when funny things happen in school.			
9. I show how I feel by smiling or frowning.			
10. I use the school's books and materials carefully.			
11. I how how to use the books by myself.			
12. I keep my working area straight.			
13. My classroom area is a comfortable place to be.			
14. I do pick up and handle things at school.			
15. I complete the work I am given to do at school.			

	Always	Some-times	Never
16. I work hard and do my best on assignments.			
17. I am nice to the people in my classroom.			
18. I do my share of the work in the classroom.			
19. I make things that are different from things others are making.			
20. I do things to make my classmates happy.			
21. I work well with the people in my classroom.			
22. I enjoy being with my classmates.			
23. I can work alone when I need to.			
24. I like to be near my classmates.			
25. I trust and depend on my teachers.			
26. I talk to my teacher about things that I do at school.			
27. I am relaxed with my teachers.			
28. I like to do the things my teachers plan.			
29. I like to be close to my teachers.			
30. I respect and am nice to my teachers.			
31. I like to laugh when my teachers tell funny stories or jokes with the class.			

APPENDIX D

OBSERVATION OF GROUP SELF-CONCEPT SCHEDULE FOR ELEMENTARY PUPILS IN GRADES FOUR, FIVE AND SIX (REVISED, 1975)

Rater _____
Date _____ Time _____
Grade _____ Section _____

Observation of Group Self-Concept Schedule
For Elementary Pupils in Grades
Four, Five and Six
Eckard
Revised 1975 c

Physical Self-Presentation

1.1 contributes to activity or self-presebtation	Posture ( ) ( ) ( ) ( ) ( ) ( ) ( )	interferes with activity or self-presentation
1.2 alert, active	Energy ( ) ( ) ( ) ( ) ( ) ( ) ( )	sluggish, inactive, lethargic
1.3 attentive, observant	Concentration ( ) ( ) ( ) ( ) ( ) ( ) ( )	indifferent, inattentive
1.4 skillful, purposeful	Body Movement ( ) ( ) ( ) ( ) ( ) ( ) ( )	reckless, destructive
1.5 appropriate to situation, pleasant	Voice Volume ( ) ( ) ( ) ( ) ( ) ( ) ( )	boisterous or muted
1.6 clearly articulated	Speech ( ) ( ) ( ) ( ) ( ) ( ) ( )	muffled, unclear
1.7 clean, orderly	Appearance ( ) ( ) ( ) ( ) ( ) ( ) ( )	soiled, careless
1.8 responds to, contributes	Humor ( ) ( ) ( ) ( ) ( ) ( ) ( )	does not respond or contribute to
1.9 highly expressive	Facial Expression ( ) ( ) ( ) ( ) ( ) ( ) ( )	no expression

Response to Physical Environment

2.1 uses for intended purpose, careful	Books and Materials ( ) ( ) ( ) ( ) ( ) ( ) ( )	mars, defaces, destructive
2.2 uses independently	Competence with Materials ( ) ( ) ( ) ( ) ( ) ( ) ( )	needs assistance, depends on others
2.3 restores after use, maintains	Concern for Defined Area ( ) ( ) ( ) ( ) ( ) ( ) ( )	does not restore or maintain
2.4 at ease, comfortable	Attitude ( ) ( ) ( ) ( ) ( ) ( ) ( )	discontent, uneasy
2.5 touches, handles	Tactility ( ) ( ) ( ) ( ) ( ) ( ) ( )	refrains from touching, avoids
2.6 accepts, completes	Response to Task ( ) ( ) ( ) ( ) ( ) ( ) ( )	avoids or feigns completion
2.7 industrious, deligent	Attitude Toward Task ( ) ( ) ( ) ( ) ( ) ( ) ( )	oblivious, inactive

Interaction with Peers

3.1 relates to pleasantly, openly	Response to Peers ( ) ( ) ( ) ( ) ( ) ( ) ( )	ignores peers or interacts excessively
3.2 assumes individual responsibility	Parallel ( ) ( ) ( ) ( ) ( ) ( ) ( )	dominates peers or withdraws, or submits
3.3 resourceful, creative	Individual Work ( ) ( ) ( ) ( ) ( ) ( ) ( )	repetitive, imitative
3.4 humor, warmth, optimistic	Contribution to Climate ( ) ( ) ( ) ( ) ( ) ( ) ( )	destructive, pessimistic
3.5 co-operative, compatible	Rapport ( ) ( ) ( ) ( ) ( ) ( ) ( )	hostile, antagonistic
3.6 seeks contact, social	Positioning ( ) ( ) ( ) ( ) ( ) ( ) ( )	isolates, withdraws
3.7 indepent, self-reliant	Attitude with Peers ( ) ( ) ( ) ( ) ( ) ( ) ( )	dependent, relies on peers
3.8 appropriate to situation	Physical Contact ( ) ( ) ( ) ( ) ( ) ( ) ( )	initiates abusive contact, or avoids contact

Interaction with Teachers

4.1 Rapport
responds willingly, open, trustful ( ) ( ) ( ) ( ) ( ) ( ) ( ) openly rejects or avoids

4.2 Discussion or Conversation
initiates with purpose, contributes openly ( ) ( ) ( ) ( ) ( ) ( ) ( ) remains silent or initiates unnecessary discussion

4.3 Pupil/Teacher Climate
relaxed, warm ( ) ( ) ( ) ( ) ( ) ( ) ( ) tense, unsure, rigid

4.4 Teacher Directed Activities
enthusiastic, stimulated ( ) ( ) ( ) ( ) ( ) ( ) ( ) critical, discontent

4.5 Positioning
seeks contact with ( ) ( ) ( ) ( ) ( ) ( ) ( ) avoids or withdraws

Consideration

4.6
respectful, courteous ( ) ( ) ( ) ( ) ( ) ( ) ( ) disrespectful, or fawns excessively

4.7 Perception of Humor
discerns and responds to humor ( ) ( ) ( ) ( ) ( ) ( ) ( ) fails to discern humor or perceives non-existent humor

APPENDIX E

HOW I AM AT SCHOOL SELF-REPORT

(REVISED, 1975)

School_____
Name_____
Grade_____ Section_____
Date_____

How I Am At School Self-Report
For Intermediate Pupils in Grades Four
Five and Six
Eckard
Revised 1975 ©

		Always	Never
1.	The way I sit in school helps me work.		
2.	I have enough energy to work and play in school.		
3.	I pay attention to things I am working on.		
4.	When I move around I do not disturb others.		
5.	Other people hear me when I talk.		
6.	I speak clearly enough for my friends to understand me.		
7.	My classmates think that I look nice.		
8.	I laugh when funny things happen at school.		
9.	I show how I feel by smiling or frowning.		
10.	I use the school's books and equipment carefully.		
11.	I know how to use the books myself.		
12.	I keep my working area straight.		
13.	My classroom area is a comfortable place to be in.		
14.	I do pick up and handle things at school.		
15.	I complete the work I am given to do at school.		
16.	I work hard and do my best on assignments.		
17.	I am nice to the people in my classroom.		
18.	I do my share of the work in the classroom.		

	Always	Never
19. I make things that are different from things others are making.		
20. I do things to make my classmates happy.		
21. I work well with the people in my classroom.		
22. I enjoy being with my classmates.		
23. I can work by myself when I need to.		
24. When I should I sit or stand close to my classmates.		
25. I trust and depend on my teachers.		
26. I talk to my teachers about things that I do at school.		
27. I am relaxed when my teachers are around me.		
28. I like the way my teachers help me learn how to do things.		
29. I like to be close to my teachers.		
30. I respect and am nice to my teachers.		
31. I like to laugh when my teachers tell funny stories or jokes with the class.		

APPENDIX F

FORM USED IN SUMMARY OF DATA COLLECTED BY OBSERVERS ORGANIZED AROUND ITEMS AND REPORTED IN ITEM SCORES ASSIGNED BY RATERS

EXAMPLE OF FORM USED IN SUMMARY OF DATA

COLLECTED THROUGH STUDENT RESPONSES

Grade Section	Always		Sometimes		Never		Item Mean Score	
	f	%	f	%	f	%	f	%
4-1								
4-2								
4-3								
Total 4								
5-1								
5-2								
5-3								
Total 5								
6-1								
6-2								
6-3								
Total 6								
Total 4, 5, 6								

APPENDIX G

EXAMPLE OF FORM USED IN SUMMARY OF DATA COLLECTED THROUGH STUDENT RESPONSES REPORTED IN FREQUENCIES AND PERCENTAGES

OBSERVATION OF GROUP SELF-CONCEPT SCHEDULE FOR

ELEMENTARY PUPILS IN GRADES FOUR, FIVE AND SIX

Posture

1.1 Contributes to activity or self-presentation						interferes with activity or self-presentation
4-1	( )	( )	( )	( )	( )	
4-2	( )	( )	( )	( )	( )	
4-3	( )	( )	( )	( )	( )	
5-1	( )	( )	( )	( )	( )	
5-2	( )	( )	( )	( )	( )	
5-3	( )	( )	( )	( )	( )	
6	( )	( )	( )	( )	( )	

Energy

1.2 alert						sluggish, inactive, lethargic
4-1	( )	( )	( )	( )	( )	
4-2	( )	( )	( )	( )	( )	
4-3	( )	( )	( )	( )	( )	
5-1	( )	( )	( )	( )	( )	
5-2	( )	( )	( )	( )	( )	
5-3	( )	( )	( )	( )	( )	
6	( )	( )	( )	( )	( )	

APPENDIX H

MEAN AND STANDARD DEVIATION OBTAINED FOR EACH INDICATOR IN THE SELF-REPORT PRIOR TO FACTOR ANALYSIS

MEAN AND STANDARD DEVIATION OBTAINED FOR

EACH INDICATOR IN THE SELF-REPORT

PRIOR TO FACTOR ANALYSIS

Indicators	Mean	Standard Deviations
1	2.99	1.00
2	4.33	0.98
3	3.74	1.13
4	3.14	0.93
5	3.26	1.19
6	4.17	1.13
7	3.63	1.16
8	4.21	1.06
9	3.77	1.20
10	4.64	0.83
11	4.40	1.00
12	3.48	0.99
13	3.27	1.39
14	3.45	1.17
15	3.78	1.08
16	4.25	1.00
17	3.50	1.03
18	4.08	1.05
19	3.48	1.15
20	3.37	0.92
21	3.56	0.99
22	4.11	1.07
23	4.27	1.13
24	2.23	1.40
25	4.11	1.21
26	3.18	1.26
27	3.27	1.21
28	3.51	1.04
29	2.99	1.25
30	4.03	1.05
31	4.07	1.24